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(No Model.)



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UNITED STATES PATENT OFFICE.

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HOISTING-DRUM.

SPECIFICATION forming part of Letters Patent No. 632,910, dated September 12, 1899.

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To all whom it may concern:

Be it known that I, EDMUND W. WILEY, JR., a citizen of the United States, residing at Le-compte, in the parish of Rapides and State
5 of Louisiana, have invented certain new and useful Improvements in Hoisting-Drums, of which the following is a specification.

This invention relates to certain new and useful improvements in hoisting or winding
10 apparatus, having for its object to provide a simple, cheap, and effective device adapted to resist great strains and one which may be easily operated and at all times under the control of a driver.

15 With this object in view the invention consists in the novel construction, combination, and arrangement of parts hereinafter more particularly described.

In the accompanying drawings, forming a
20 part of this specification and in which like letters and figures of reference indicate corresponding parts, Figure 1 is a vertical sectional view of an apparatus embodying the invention. Fig. 2 is a plan view thereof, and Fig.
25 3 is a detail view of the brake-operating mechanism.

Referring more particularly to the drawings, A designates the base of the apparatus, formed in the present instance of two paral-
30 lel beams 1, connected by means of a base-plate 2 of metal. Of course it will be understood that the base may be constructed of various materials and in various manners to suit requirements.

35 Secured to the base-plate 2 in any suitable manner is a shaft 3, upon which is mounted to turn freely a winding-drum 4 of any desired dimensions and construction. As shown, the drum is formed with a smooth exterior
40 surface; but it will be understood that it may be provided with a peripheral spiral groove. Upon its upper face the drum 4 is formed with an annular flange 5, provided in its inner face with notches 6 and having a smooth
45 outer face 6^a to constitute a bearing for a brake strap or band. In the one embodiment of the invention shown the notched flange or ring is formed integral with the drum 4, and it is preferred to so form it in the interest of
50 simplicity and cheapness. Obviously, however, the said flange may be made separately from the drum and attached thereto in any

suitable manner, and in some instances an ordinary ratchet-wheel might be substituted for the ring. Likewise mounted loosely upon
55 the shaft 3 is a frame 7, to an arm 8 of which is pivoted a pawl 9, adapted to engage the notches of the flange 5. Pivotally connected to this arm 8 is a lever 10, one end of which is in turn pivotally connected by a link 9^a to
60 the outer end of the pawl 9. The outer end of the lever 10 projects above the edge and beyond the periphery of the flange 5 in convenient position to be grasped by the operator, and said lever, being pivoted intermedi-
65 ate its ends, by swinging it upon its pivot the pawl 9 may be caused to engage or be carried out of engagement with the notches 6 of the flange 5 to permit the unwinding or a retro-
grade movement of the drum. 7c

Attached rigidly in any suitable manner to opposite sides of the frame 7 are two sweep-
arms 12, which converge at or near their ends and to which a horse is adapted to be hitched
75 to rotate the frame, and through the engagement of the pawl 9 with the notches of the flange 5 likewise rotate the drum 4. Likewise rigidly connected to the frame 7 is a toothed or ratchet wheel 14, with the teeth of which
80 engage two or more pawls 15, pivoted to an arm or bracket 16, fixedly mounted upon the upper end of the shaft 3, and preferably these pawls slightly vary in length in order that one of them may always be in a position to en-
85 gage the teeth of the ratchet 14 and the slightest premature unwinding of the drum thereby prevented.

With the parts constructed and arranged as above described when the sweep and frame
7 are rotated the pawl 9, being in engagement
90 with the notches of the flange 5, will cause the said flanges and drum to rotate, the pawls 15 by engagement with the ratchet-wheel 14 serving to prevent any backward movement of the sweep 12. When, however, it is de-
95 sired to permit the unwinding of the drum, it is only necessary to swing the lever 10 upon its pivot, carrying the pawl 9 out of engagement with the notches of the flange 5, the drum being thereby disconnected from the
100 sweep and free to rotate in either direction upon its shaft.

It is sometimes desirable to prevent the too rapid unwinding of the drum 4, and as a sim-

ple and effective means of effecting this a flexible brake-band 18, of leather, metal, or other suitable material, preferably an iron strap lined with tough wood, is employed, said band
5 surrounding the outer surface of the notched flanged 5 and being fixedly secured at one end to the sweep 12. At its opposite end the brake-band is connected to one arm of a bell-crank lever 19, pivotally supported upon one
10 of the sweep-arms, and to the opposite arm of said bell-crank lever is in turn connected, by means of a link 20, an operating-lever 21, pivoted to the second sweep-arm and projecting therefrom to a point in close proximity to the
15 lever 10. When thus arranged, by swinging the lever 21 upon its pivot the brake-band may be tightened around the flange 5 and the rate at which the drum is permitted to unwind effectively regulated.

20 It will be noted that both the brake and releasing-levers are arranged to travel with the sweep and project from the same side thereof in close proximity, and in consequence the driver of a team may always be in convenient
25 reach of either or both of the levers to operate the same.

It will also be noted from the above description, taken in connection with drawings, that the drum-shaft is supported solely at its lower
30 end, thus dispensing with the use of struts or braces usually employed in construction with portable winding apparatus, and by this means I am enabled to arrange the brake and releasing levers upon the sweep to travel
35 therewith in order that they will always be in the same positions relative to the driver and team and be in convenient reach of the driver or operator. Moreover, sight will not be lost of the fact that by the employment of the
40 pawls 15 and ratchet 14 unwinding of the drum is prevented should the sweep become broken during the winding operation or the team should become accidentally unhitched.

Without limiting myself to the precise construction and arrangement of the parts shown and described, since various changes in such construction and arrangement may be made without departing from the spirit or scope of my invention, what I claim is—

50 1. In winding apparatus, the combination of a base, a shaft supported thereon, a winding-drum loosely mounted upon the shaft and having an annular toothed or notched surface, a frame likewise loosely mounted upon the

shaft and having ratchet-teeth, a sweep projecting from said frame, a pawl pivoted to said frame and adapted to engage the notches of the drum, a pivoted lever for operating said pawl and one or more pawls carried upon a stationary part for engaging the ratchet-teeth of the frame, substantially as described. 55 60

2. In winding apparatus, the combination of a base, a shaft supported thereon, a winding-drum loosely mounted upon the shaft and having an annular flange integral therewith
65 and formed with a series of notches or teeth on its interior surface, a frame likewise loosely mounted upon the shaft, a sweep projecting from the frame to rotate the same, a pawl pivoted to said frame and adapted to engage
70 the notches of the flange and a pivoted lever connected to and adapted to operate the pawl, substantially as described.

3. In winding apparatus, the combination of a base, a shaft supported thereon, a winding-drum loosely mounted upon the shaft and having an annular flange integral therewith
75 and formed with a series of notches or teeth on its interior surface, a frame likewise loosely mounted upon the shaft, a sweep projecting from the frame to rotate the same, a pawl pivoted to said frame and adapted to engage
80 the notches of the flange, a pivoted lever connected to and adapted to operate the pawl, and a brake device arranged to control the rotation of the drum, substantially as described. 85

4. In winding apparatus, the combination of a frame, a shaft supported thereon, a winding-drum loosely mounted upon the shaft and having an annular flange with a toothed or
90 notched inner surface and a smooth exterior surface, a frame likewise loosely mounted upon the shaft and carrying a pawl adapted to engage the notches of the flange, means for operating the pawl, a sweep projecting
95 from the frame, a brake-band surrounding the flange, said band being connected fixedly at one end to the sweep, and devices carried upon the sweep for tightening the band around the flange, substantially as described. 100

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDMUND W. WILEY, JR.

Witnesses:

LEON WEINBERG,
J. WOLF.